

SEQUENCE LISTING

- 5 SEQ ID NO: 1 is primate GPR2 nucleotide sequence.
SEQ ID NO: 2 is primate GPR2 amino acid sequence.
SEQ ID NO: 3 is rodent GPR2 nucleotide sequence.
SEQ ID NO: 4 is rodent GPR2 amino acid sequence.
SEQ ID NO: 5 is primate Vic nucleotide sequence.
10 SEQ ID NO: 6 is primate Vic amino acid sequence.
SEQ ID NO: 7 is alternative primate Vic nucleotide sequence.
SEQ ID NO: 8 is alternative primate Vic amino acid sequence.
SEQ ID NO: 9 is rodent Vic nucleotide sequence.
SEQ ID NO: 10 is rodent Vic amino acid sequence.
15 SEQ ID NO: 11 is primate CTACK nucleotide sequence.
SEQ ID NO: 12 is primate CTACK amino acid sequence.
SEQ ID NO: 13 is rodent CTACK nucleotide sequence.
SEQ ID NO: 14 is rodent CTACK amino acid sequence.
SEQ ID NO: 15 provides a primate actin PCR primer sequence.
20 SEQ ID NO: 16 provides a primate actin PCR primer sequence.

- <110> Wang, Wei
Oldham, Elizabeth R.
Soto, Hortensia
25 Liu, Ying
Hudak, Susan A.
Homey, Bernhard
Morales, Janine M.
Kellermann, Sirid-Aimee
30 McEvoy, Leslie M.
Bowman, Edward P.
Zlotnik, Albert

<120> Chemokine and Receptor Uses; Compositions; Methods

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<170> PatentIn Ver. 2.0

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	gat gaa gag gac gca tac tcg gct gag cca ctg ccg gag ctt tgc tac	96
	Asp Glu Glu Asp Ala Tyr Ser Ala Glu Pro Leu Pro Glu Leu Cys Tyr	
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10	aag gcc gat gtc cag gcc ttc agc cgg gcc ttc caa ccc agt gtc tcc	144
	Lys Ala Asp Val Gln Ala Phe Ser Arg Ala Phe Gln Pro Ser Val Ser	
	35 40 45	
15	ctg acg ctg gct gcg ctg ggt ctg gcc ggc aat ggc ctg gtc ctg gcc	192
	Leu Thr Leu Ala Ala Leu Gly Leu Ala Gly Asn Gly Leu Val Leu Ala	
	50 55 60	
20	acc cac ctg gca gcc cga cgc gca gcg cgc tcg ccc acc tct gcc cac	240
	Thr His Leu Ala Ala Arg Arg Ala Ala Arg Ser Pro Thr Ser Ala His	
	65 70 75 80	
25	ctg ctc cag ctg gcc ctg gcc gac ctc ttg ctg gcc ctg act ctg ccc	288
	Leu Leu Gln Leu Ala Leu Ala Asp Leu Leu Leu Ala Leu Thr Leu Pro	
	85 90 95	
30	ttc gcg gca gca ggg gct ctt cag ggc tgg agt ctg gga agt gcc acc	336
	Phe Ala Ala Ala Gly Ala Leu Gln Gly Trp Ser Leu Gly Ser Ala Thr	
	100 105 110	
35	tgc cgc acc atc tct ggc ctc tac tcg gcc tcc ttc cac gcc ggc ttc	384
	Cys Arg Thr Ile Ser Gly Leu Tyr Ser Ala Ser Phe His Ala Gly Phe	
	115 120 125	
40	ctc ttc ctg gcc tgt atc agc gcc gac cgc tac gtg gcc atc gcg cga	432
	Leu Phe Leu Ala Cys Ile Ser Ala Asp Arg Tyr Val Ala Ile Ala Arg	
	130 135 140	
45	gcg ctc cca gcc ggg ccg cgg ccc tcc act ccc ggc cgc gca cac ttg	480
	Ala Leu Pro Ala Gly Pro Arg Pro Ser Thr Pro Gly Arg Ala His Leu	
	145 150 155 160	
50	gtc tcc gtc atc gtg tgg ctg ctg tca ctg ctc ctg gcg ctg cct gcg	528
	Val Ser Val Ile Val Trp Leu Leu Ser Leu Leu Leu Ala Leu Pro Ala	
	165 170 175	
55	ctg ctc ttc agc cag gat ggg cag cgg gaa ggc caa cga cgc tgt cgc	576
	Leu Leu Phe Ser Gln Asp Gly Gln Arg Glu Gly Gln Arg Arg Cys Arg	
	180 185 190	
60	ctc atc ttc ccc gag ggc ctc acg cag acg gtg aag ggg gcg agc gcc	624
	Leu Ile Phe Pro Glu Gly Leu Thr Gln Thr Val Lys Gly Ala Ser Ala	
	195 200 205	
65	gtg gcg cag gtg gcc ctg ggc ttc gcg ctg ccg ctg ggc gtc atg gta	672
	Val Ala Gln Val Ala Leu Gly Phe Ala Leu Pro Leu Gly Val Met Val	
	210 215 220	

gcc tgc tac gcg ctt ctg ggc cgc acg ctg ctg gcc gcc agg ggg ccc 720
 Ala Cys Tyr Ala Leu Leu Gly Arg Thr Leu Leu Ala Ala Arg Gly Pro
 225 230 235 240

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gag cgc cgg cgt gcg ctg cgc gtc gtg gtg gct ctg gtg gcg gcc ttc 768
 Glu Arg Arg Arg Ala Leu Arg Val Val Val Ala Leu Val Ala Ala Phe
 245 250 255

10

gtg gtg ctg cag ctg ccc tac agc ctc gcc ctg ctg ctg gat act gcc 816
 Val Val Leu Gln Leu Pro Tyr Ser Leu Ala Leu Leu Leu Asp Thr Ala
 260 265 270

15

gat cta ctg gct gcg cgc gag cgg agc tgc cct gcc agc aaa cgc aag 864
 Asp Leu Leu Ala Ala Arg Glu Arg Ser Cys Pro Ala Ser Lys Arg Lys
 275 280 285

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gat gtc gca ctg ctg gtg acc agc ggc ttg gcc ctc gcc cgc tgt ggc 912
 Asp Val Ala Leu Leu Val Thr Ser Gly Leu Ala Leu Ala Arg Cys Gly
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ctc aat ccc gtt ctc tac gcc ttc ctg ggc ctg cgc ttc cgc cag gac 960
 Leu Asn Pro Val Leu Tyr Ala Phe Leu Gly Leu Arg Phe Arg Gln Asp
 305 310 315 320

30

ctg cgg agg ctg cta cgg ggt ggg agc tgc ccc tca ggg cct caa ccc 1008
 Leu Arg Arg Leu Leu Arg Gly Gly Ser Ser Pro Ser Gly Pro Gln Pro
 325 330 335

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cgc cgc ggc tgc ccc cgc cgg ccc cgc ctt tct tcc tgc tca gct ccc 1056
 Arg Arg Gly Cys Pro Arg Arg Pro Arg Leu Ser Ser Cys Ser Ala Pro
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 35 40 45

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Leu Thr Leu Ala Ala Leu Gly Leu Ala Gly Asn Gly Leu Val Leu Ala
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Thr His Leu Ala Ala Arg Arg Ala Ala Arg Ser Pro Thr Ser Ala His
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Tyr Asp Glu Glu Ala Tyr Ser Val Gly Pro Leu Pro Glu Leu Cys Tyr
                20                25                30

20
aag gct gat gtc cag gct ttc agt cgg gcc ttc caa ccc agt gtc tcc 144
Lys Ala Asp Val Gln Ala Phe Ser Arg Ala Phe Gln Pro Ser Val Ser
                35                40                45

25
ctg atg gtg gct gta ctg ggt ctg gct ggc aat ggc cta gtc ttg gcc 192
Leu Met Val Ala Val Leu Gly Leu Ala Gly Asn Gly Leu Val Leu Ala
                50                55                60

30
acc cat ctg gca gcc aga cga act acc cga tct ccc acc tcc gtt cac 240
Thr His Leu Ala Ala Arg Arg Thr Thr Arg Ser Pro Thr Ser Val His
  65                70                75                80

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ctg ctc cag ttg gcc ctg gct gac ctt tta ttg gcc ctg act ttg cct 288
Leu Leu Gln Leu Ala Leu Ala Asp Leu Leu Leu Ala Leu Thr Leu Pro
                85                90                95

40
ttt gct gca gca ggg gct ctt cag ggc tgg aat cta gga agt acc acc 336
Phe Ala Ala Ala Gly Ala Leu Gln Gly Trp Asn Leu Gly Ser Thr Thr
                100                105                110

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tgc cgt gcc atc tca ggc ctc tac tcg gcc tct ttc cac gct ggc ttc 384
Cys Arg Ala Ile Ser Gly Leu Tyr Ser Ala Ser Phe His Ala Gly Phe
                115                120                125

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ctc ttc cta gcc tgt atc agc gcc gac cgc tat gtg gcc atc gca cga 432
Leu Phe Leu Ala Cys Ile Ser Ala Asp Arg Tyr Val Ala Ile Ala Arg
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gct ctc cca gcc ggg cag cgg ccc tca acg cct agc cga gcg cac ttg 480
Ala Leu Pro Ala Gly Gln Arg Pro Ser Thr Pro Ser Arg Ala His Leu
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gtt tca gtc ttc gtg tgg ctg ttg gcg ctg ttt ctg gct cta cct gcg 528
Val Ser Val Phe Val Trp Leu Leu Ala Leu Phe Leu Ala Leu Pro Ala
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 180 185 190

5 ctc att ttt ccc gaa agc ctc acg cag act gtg aaa ggg gca agc gca 624
 Leu Ile Phe Pro Glu Ser Leu Thr Gln Thr Val Lys Gly Ala Ser Ala
 195 200 205

10 gtg gcg cag gtg gtc ctc ggc ttc gcg ctc cct ctg ggc gtc atg gca 672
 Val Ala Gln Val Val Leu Gly Phe Ala Leu Pro Leu Gly Val Met Ala
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15 gcc tgt tat gcg ctc ctg ggc cgc acg ctt ctg gcc gcc agg ggg cca 720
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20 gag cgg cgg cgt gca ctg cgc gtc gtg gtg gct ttg gtg gtg gcc ttc 768
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 245 250 255

25 gtg gtg ctg cag ttg ccc tac agc ctt gcc ctg ctg ctg gat aca gcc 816
 Val Val Leu Gln Leu Pro Tyr Ser Leu Ala Leu Leu Leu Asp Thr Ala
 260 265 270

30 gat cta ctg gca gcc cgc gag cgg agc tgc tcc tcc agc aag cgc aag 864
 Asp Leu Leu Ala Ala Arg Glu Arg Ser Cys Ser Ser Ser Lys Arg Lys
 275 280 285

35 gat cta gct ttg ctg gtc acc ggc ggc ttg acc ctg gtc cgt tgc agc 912
 Asp Leu Ala Leu Leu Val Thr Gly Gly Leu Thr Leu Val Arg Cys Ser
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40 ctc aat ccg gtg ctt tat gcc ttt ttg ggc ctg cgt ttc cgc cgg gac 960
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 305 310 315 320

45 ctg cgg agg ctg ctc cag ggc gga gga tgc agc ccg aag ccc aac cct 1008
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50 cgt ggc cgc tgc ccc cgt cga ctc cgc ctt tct tcc tgc tct gct cct 1056
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 35 40 45
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 50 55 60
 10 Thr His Leu Ala Ala Arg Arg Thr Thr Arg Ser Pro Thr Ser Val His
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 Leu Leu Gln Leu Ala Leu Ala Asp Leu Leu Leu Ala Leu Thr Leu Pro
 85 90 95
 15 Phe Ala Ala Ala Gly Ala Leu Gln Gly Trp Asn Leu Gly Ser Thr Thr
 100 105 110
 20 Cys Arg Ala Ile Ser Gly Leu Tyr Ser Ala Ser Phe His Ala Gly Phe
 115 120 125
 Leu Phe Leu Ala Cys Ile Ser Ala Asp Arg Tyr Val Ala Ile Ala Arg
 130 135 140
 25 Ala Leu Pro Ala Gly Gln Arg Pro Ser Thr Pro Ser Arg Ala His Leu
 145 150 155 160
 Val Ser Val Phe Val Trp Leu Leu Ala Leu Phe Leu Ala Leu Pro Ala
 165 170 175
 30 Leu Leu Phe Ser Arg Asp Gly Pro Arg Glu Gly Gln Arg Arg Cys Arg
 180 185 190
 35 Leu Ile Phe Pro Glu Ser Leu Thr Gln Thr Val Lys Gly Ala Ser Ala
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 Val Ala Gln Val Val Leu Gly Phe Ala Leu Pro Leu Gly Val Met Ala
 210 215 220
 40 Ala Cys Tyr Ala Leu Leu Gly Arg Thr Leu Leu Ala Ala Arg Gly Pro
 225 230 235 240
 Glu Arg Arg Arg Ala Leu Arg Val Val Val Ala Leu Val Val Ala Phe
 245 250 255
 45 Val Val Leu Gln Leu Pro Tyr Ser Leu Ala Leu Leu Leu Asp Thr Ala
 260 265 270
 50 Asp Leu Leu Ala Ala Arg Glu Arg Ser Cys Ser Ser Ser Lys Arg Lys
 275 280 285
 Asp Leu Ala Leu Leu Val Thr Gly Gly Leu Thr Leu Val Arg Cys Ser
 290 295 300
 55 Leu Asn Pro Val Leu Tyr Ala Phe Leu Gly Leu Arg Phe Arg Arg Asp
 305 310 315 320

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Leu Arg Arg Leu Leu Gln Gly Gly Gly Cys Ser Pro Lys Pro Asn Pro
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    Gln Gln Arg Gly Leu Ala Ile Val Ala Leu Ala Val Cys Ala Ala Leu
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35 cat gcc tca gaa gcc ata ctt ccc att gcc tcc agc tgt tgc acg gag 154
    His Ala Ser Glu Ala Ile Leu Pro Ile Ala Ser Ser Cys Cys Thr Glu
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40 gtt tca cat cat att tcc aga agg ctc ctg gaa aga gtg aat atg tgt 202
    Val Ser His His Ile Ser Arg Arg Leu Leu Glu Arg Val Asn Met Cys
    15          20          25

45 cgc atc cag aga gct gat ggg gat tgt gac ttg gct gct gtc atc ctt 250
    Arg Ile Gln Arg Ala Asp Gly Asp Cys Asp Leu Ala Ala Val Ile Leu
    30          35          40

    cat gtc aag cgc aga aga atc tgt gtc agc ccg cac aac cat act gtt 298
    His Val Lys Arg Arg Arg Ile Cys Val Ser Pro His Asn His Thr Val
    45          50          55

55 aag cag tgg atg aaa gtg caa gct gcc aag aaa aat ggt aaa gga aat 346
    Lys Gln Trp Met Lys Val Gln Ala Ala Lys Lys Asn Gly Lys Gly Asn
    60          65          70          75

    gtt tgc cac agg aag aaa cac cat ggc aag agg aac agt aac agg gca 394
    Val Cys His Arg Lys Lys His His Gly Lys Arg Asn Ser Asn Arg Ala
    80          85          90

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cat cag ggg aaa cac gaa aca tac ggc cat aaa act cct tat           436
His Gln Gly Lys His Glu Thr Tyr Gly His Lys Thr Pro Tyr
          95                100                105

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tagagagtct acagataaat ctacagagac aattcctcaa gtggacttgg ccatgattgg 496
ttgtcctgca tactgatgaa actactgatg tcvgtgtggtc tgaaaggacc taccagaagc 556
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taaatctcca agaatgccat ttccctatcc ctaatgattc aatctccctt accctgacca 616
atcagtggcc caaattttcc agccccttgc ctcccagaac cccagcccag aactcttcag 676
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30
Glu Val Ser His His Ile Ser Arg Arg Leu Leu Glu Arg Val Asn Met
          15                20                25
Cys Arg Ile Gln Arg Ala Asp Gly Asp Cys Asp Leu Ala Ala Val Ile
          30                35                40
35
Leu His Val Lys Arg Arg Arg Ile Cys Val Ser Pro His Asn His Thr
          45                50                55
Val Lys Gln Trp Met Lys Val Gln Ala Ala Lys Lys Asn Gly Lys Gly
          60                65                70
40
Asn Val Cys His Arg Lys Lys His His Gly Lys Arg Asn Ser Asn Arg
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 Ile Tyr Trp Gly Cys Phe Tyr Phe Phe Pro Trp Leu Arg Met Trp Arg
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10 agg gag cgg agt ccg atg tct cca aca agc cag aga cta agt ctg gaa 144
 Arg Glu Arg Ser Pro Met Ser Pro Thr Ser Gln Arg Leu Ser Leu Glu
 35 40 45

15 gcc ccc agc ctc cca ctg aga agc tgg cat ccg tgg aac aag act aag 192
 Ala Pro Ser Leu Pro Leu Arg Ser Trp His Pro Trp Asn Lys Thr Lys
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20 cag aag caa gaa gcc ttg cct ctg ccc tcc agc act agc tgc tgt act 240
 Gln Lys Gln Glu Ala Leu Pro Leu Pro Ser Ser Thr Ser Cys Cys Thr
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cag ctc tat aga cag cca ctc cca agc agg ctg ctg agg agg att gtc 288
 Gln Leu Tyr Arg Gln Pro Leu Pro Ser Arg Leu Leu Arg Arg Ile Val
 85 90 95

25 cac atg gaa ctg cag gag gcc gat ggg gac tgt cac ctc cag gct gtc 336
 His Met Glu Leu Gln Glu Ala Asp Gly Asp Cys His Leu Gln Ala Val
 100 105 110

30 gtg ctt cac ctg gct cgg cgc agt gtc tgt gtt cat ccc cag aac cgc 384
 Val Leu His Leu Ala Arg Arg Ser Val Cys Val His Pro Gln Asn Arg
 115 120 125

35 agc ctg gct cgg tgg tta gaa cgc caa ggg aaa agg ctc caa ggg act 432
 Ser Leu Ala Arg Trp Leu Glu Arg Gln Gly Lys Arg Leu Gln Gly Thr
 130 135 140

40 gta ccc agt tta aat ctg gta cta caa aag aaa atg tac tca aac ccc 480
 Val Pro Ser Leu Asn Leu Val Leu Gln Lys Lys Met Tyr Ser Asn Pro
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Arg Glu Arg Ser Pro Met Ser Pro Thr Ser Gln Arg Leu Ser Leu Glu
      35                40                45

5  Ala Pro Ser Leu Pro Leu Arg Ser Trp His Pro Trp Asn Lys Thr Lys
   50                55                60

Gln Lys Gln Glu Ala Leu Pro Leu Pro Ser Ser Thr Ser Cys Cys Thr
   65                70                75                80
10 Gln Leu Tyr Arg Gln Pro Leu Pro Ser Arg Leu Leu Arg Arg Ile Val
      85                90                95

15 His Met Glu Leu Gln Glu Ala Asp Gly Asp Cys His Leu Gln Ala Val
      100                105                110

Val Leu His Leu Ala Arg Arg Ser Val Cys Val His Pro Gln Asn Arg
      115                120                125

20 Ser Leu Ala Arg Trp Leu Glu Arg Gln Gly Lys Arg Leu Gln Gly Thr
   130                135                140

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50 ttt caa acc tca gaa gcc ata ctt ccc atg gcc tcc agc tgt tgc act 96
    Phe Gln Thr Ser Glu Ala Ile Leu Pro Met Ala Ser Ser Cys Cys Thr
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55 gag gtg tct cat cat gtt tcc gga aga ctt ctg gaa aga gtg agt tca 144
    Glu Val Ser His His Val Ser Gly Arg Leu Leu Glu Arg Val Ser Ser
              15                20                25

tgc agc atc cag aga gct gac ggg gac tgc gac ctg gct gct gtc atc 192
Cys Ser Ile Gln Arg Ala Asp Gly Asp Cys Asp Leu Ala Ala Val Ile
      30                35                40

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ctt cat gtt aaa cgt aga aga atc tgc atc agc ccg cac aat cgt act 240
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5

ttg aag cag tgg atg aga gcc tca gag gta aag aag aat ggc aga gaa 288
 Leu Lys Gln Trp Met Arg Ala Ser Glu Val Lys Lys Asn Gly Arg Glu
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10

aac gtc tgt tct ggg aaa aaa caa ccc agc agg aag gac aga aaa ggg 336
 Asn Val Cys Ser Gly Lys Lys Gln Pro Ser Arg Lys Asp Arg Lys Gly
 75 80 85 90

15

cac act acg aga aag cac aga aca cgt gga aca cac agg cac gaa gcc 384
 His Thr Thr Arg Lys His Arg Thr Arg Gly Thr His Arg His Glu Ala
 95 100 105

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tct cgt tag
 Ser Arg 393

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Phe Gln Thr Ser Glu Ala Ile Leu Pro Met Ala Ser Ser Cys Cys Thr
 -5 -1 1 5 10

35

Glu Val Ser His His Val Ser Gly Arg Leu Leu Glu Arg Val Ser Ser
 15 20 25

Cys Ser Ile Gln Arg Ala Asp Gly Asp Cys Asp Leu Ala Ala Val Ile
 30 35 40

40

Leu His Val Lys Arg Arg Arg Ile Cys Ile Ser Pro His Asn Arg Thr
 45 50 55

45

Leu Lys Gln Trp Met Arg Ala Ser Glu Val Lys Lys Asn Gly Arg Glu
 60 65 70

Asn Val Cys Ser Gly Lys Lys Gln Pro Ser Arg Lys Asp Arg Lys Gly
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His Thr Thr Arg Lys His Arg Thr Arg Gly Thr His Arg His Glu Ala
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Ser Arg

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15

ctg agc cca gac cct aca gca gca ttc cta ctg cca ccc agc act gcc 96
Leu Ser Pro Asp Pro Thr Ala Ala Phe Leu Leu Pro Pro Ser Thr Ala
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20

tgc tgt act cag ctc tac cga aag cca ctc tca gac aag cta ctg agg 144
Cys Cys Thr Gln Leu Tyr Arg Lys Pro Leu Ser Asp Lys Leu Leu Arg
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25

aag gtc atc cag gtg gaa ctg cag gag gct gac ggg gac tgt cac ctc 192
Lys Val Ile Gln Val Glu Leu Gln Glu Ala Asp Gly Asp Cys His Leu
25 30 35 40

30

cag gct ttc gtg ctt cac ctg gct caa cgc agc atc tgc atc cac ccc 240
Gln Ala Phe Val Leu His Leu Ala Gln Arg Ser Ile Cys Ile His Pro
45 50 55

35

cag aac ccc agc ctg tca cag tgg ttt gag cac caa gag aga aag ctc 288
Gln Asn Pro Ser Leu Ser Gln Trp Phe Glu His Gln Glu Arg Lys Leu
60 65 70

40

cat ggg act ctg ccc aag ctg aat ttt ggg atg cta agg aaa atg ggc 336
His Gly Thr Leu Pro Lys Leu Asn Phe Gly Met Leu Arg Lys Met Gly
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tgaagcccca atagccaaat aataaa 362

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Leu Ser Pro Asp Pro Thr Ala Ala Phe Leu Leu Pro Pro Ser Thr Ala
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45 gcc gat ggg gac tgt cac ctc cag gct gtc gtg ctt cac ctg gct cgg 244
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    Arg Ser Val Cys Val His Pro Gln Asn Arg Ser Leu Ala Arg Trp Leu
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gta cta caa aag aaa atg tac tca aac ccc caa cag caa aac 382
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 Arg Arg Ile Val His Met Glu Leu Gln Glu Ala Asp Gly Asp Cys His
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 Pro Gln Asn Arg Ser Leu Ala Arg Trp Leu Glu Arg Gln Gly Lys Arg
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